WUE01-0041

Cover Sheet

1. Specify: [X] agricultural project [ ] urban project [X] individual application [ ] joint application

2. Proposal title: Western Canal Water District Water Use Efficiency Project

3. Principal applicant: Western Canal Water District

4. Contact: Matt Colwell, General Manager

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8. E-mail: WesternCan@aol.com

9. Funds Requested: $ 265,524

10. Applicant cost share funds pledged: $ 20,000

11. Duration: 6 months (6/2001-12/2001)

12. State Assembly and Senate districts and Congressional district:

    California Assembly Representative: Sam Aanestad District No. 3

    California Senate Representative: Rico Oller District No. 1

    Congressional Representative: Wally Herger District No. 2

13. Location and geographic boundaries: The project area is the boundaries of Western Canal Water District. The District encompasses 67,550 acres and is in the Northern Sacramento Valley, east of the Sacramento River, in Butte and Glenn Counties. It is located south of Chico, west of Oroville and east of the Sacramento River. There are 58,835 irrigable acres with approximately two-thirds of that acreage in Butte County and one-third in Glenn County. Butte Creek bisects the District from north to south.

14. Official representing applicant:

    Matt Colwell, General Manager

    Matt Colwell
    (signature of applicant)

    2/14/01
    (date)

Scope of Work

Relevance and Importance

1. Western Canal Water District's Water Use Efficiency Project consists of two components: water management software and water meter calibration station. These components will enable the District to create a relational database to track water use efficiency within the District and ensure accurate on-farm delivery to users. This project will partially address CALFED Quantifiable Objective #38 by reducing diversions from the Feather River.

2. This project will fill a critical local need for more reliable, accurate, and flexible water management. The resulting increase in water management will increase the efficiency of water users and the District, thus reducing costs for both.

   This project will fill a critical Bay-Delta need of increasing flow to improve aquatic ecosystem conditions in the Feather River. This Bay-Delta need is embodied in the CALFED Quantifiable Objective #38.

   This project is consistent with the CALFED Water Use Efficiency Program, the Agricultural Water Management Council priorities, Butte County Water and Resource Conservation Department principles, and Western Canal Water District's Water Management Plan, which calls for support of the availability of water management services to water users and accurate water measurement.

3. This project has two components to achieve increased water management efficiency:

   a. Water Management Software: The District would purchase water management software, H2O Pro, to create a relational database. The software would allow the District to better track water use by users, fields, areas, laterals, etc. The scope of this component would include purchasing and installing H2O Pro, purchase of six hand held data recorders, and technical support for training and upgrades.

      The objective of this component is to reduce staff time associated with water use analysis, increase flexibility of water deliveries, and increase awareness of water use efficiency to users which would increase the efficiency of applied water, thereby reducing diversions from the Feather River (CALFED Quantifiable Objective #38).

   b. Water Meter Calibration Station: The District would replace the current meter calibration station with a new facility. An independent review by Cal Poly's ITRC found the old facility to be in a declining state with poor design, jeopardizing the accuracy of meter calibration. The proposed facility would increase the accuracy and reliability of the District's Meter Calibration Program. The scope of this component includes replacing the existing meter calibration

station with a new facility that includes a Replogle flume structure, Waterman screw gates (12", 18", 21", 24", 30", 36", 48"), 40 feet each of reinforced concrete pipe (12", 18", 21", 24", 30", 36", 48"), and meter brackets. This facility has the ability to calibrate meters of various sizes at differing flows.

The objective of this component is to increase the accuracy of flow meters for Western Canal Water District, which is a fully metered agricultural water district.

Technical/Scientific Merit, Feasibility, Monitoring, and Assessment

4. This project has two components to achieve increased water management efficiency:

   a. The water management software, H2O Pro, along with hand held data recorders will allow District personnel to better track water use among its growers. A relational database will reduce staff time in analyzing water use efficiency within the District. Currently, the District's water reporting methods are inadequate for detailed analysis of water use efficiency. While water meters are recorded on a daily basis, the data is only entered into a database on a bimonthly time step. Hand held data recorders would automatically enter each daily reading into the computer, thus allowing instant access and reduce labor from data processing. The availability of real time data will be extended to growers to allow for better management decisions. Timely data made available to growers will increase flexibility and water use efficiency, which is expected to reduce diversions from the Feather River (CALFED QO #38). This software has been successfully implemented by other water districts within California and could easily tie into the Bureau of Reclamation's data acquisition for a basin wide plan. Water management data compatibility with all water users would facilitate better coordination with local, State, and federal agencies.

   b. A new Water Meter Calibration Station would greatly increase the accuracy of the District's water meters. The current station is poorly designed and in a declining state. As one of the few fully metered agricultural water districts in California, it is imperative that water measurement accuracy be a priority. The current level of accuracy is unknown but believed to be within 10%. It is the District's goal to increase accuracy to within 2-3%. This goal is embodied by the Agricultural Water Management Council's Efficient Water Management Practice #10 (water measurement). The District operates a Meter Calibration Program where several meters are calibrated yearly. A new facility would enhance the District's Meter Calibration Program thus ensuring accurate on farm deliveries to customers.

5. Schedule

Task 1: Purchase and install water management software, H2O Pro and hand held data recorders ($30,100) **30 days**

Task 2: Contract for engineering and design of Water Meter Calibration Station ($5,000) **7 days**

Task 3: Preparation of a final design of Water Meter Calibration Station ($20,000) **30 days**

Task 4: Contract for construction of Water Meter Calibration Station ($5,000) **7 days**

Task 5: Quarterly progress report ($1,000) **7 days**

Task 6: Construct Water Meter Calibration Station ($200,000) **60 days**

Task 7: Final programmatic report to funding agency ($5,000) **30 days**

Total Project Timeline **6 months**

It is anticipated that Task 1 could be implemented immediately upon receiving funding. Tasks 2-5 could also be implemented immediately. Task 6 would require dewatering the main canal system and could take place shortly after the irrigation season in mid September.

6. Monitoring procedures will be implemented to assess the effectiveness of the project. Comparisons will be made between historical data and post project data. Progress towards QO #38 will be measured by monitoring diversions from the Feather River and comparing diversion amounts from previous years. Water meter accuracy will be tracked by calibrating meters with the new facility and comparing those to the District's data generated by its meter calibration program using the old facility. Meters will be calibrated to reflect the 2-3% accuracy goal. Meter accuracy will be assured which will increase water use efficiency.

Outreach, Community Involvement, and Information Transfer

1. Efforts have been made to involve all entities that may have an interest in the project. Butte County Water and Resource Conservation Department has been contacted as well as the Agricultural Department at California State University, Chico. It is intended that this project be open to all who may benefit, including but not limited to Western Canal Water District water users, water users from other water districts, County personnel, Department of Water Resources staff, university and community college faculty and staff, and the general public.

   If available, locally owned disadvantaged businesses will be used to perform the engineering and/or construction of the project.

2. Once implemented, the project will be used to educate students on water use efficiency from local universities and community colleges. The District already engages students by conducting field tours of its water conveyance facilities. Neighboring water districts might also find the water use efficiency advances helpful within their own districts'.

3. Information will be disseminated to all growers in an effort to improve water use efficiency. With more information, the growers will be able to improve on their water use management and improve the irrigation efficiency on their crops. The data will be available at all times to any member of the public. It is anticipated that growers will receive detailed reports on their water use after every irrigation season. If feasible, detailed monthly reports may also be distributed. Relevant data regarding individual meter calibration will also be distributed to water users.

2. External cooperators for this project include EasyReader International, Inc., which will sell, install and train District personnel in the application of the water management software, H2O Pro. Qualified engineering and construction firms to design and build the meter calibration station. Preferably these companies will be classified as disadvantaged businesses.

3. Western Canal Water District has developed partnerships with the Butte County Water and Resource Conservation Department and the Agricultural Department at California State University, Chico. As well as providing growers with increased water management tools and improved water measurement accuracy, this project will serve as a valuable educational resource for students and the general public.

   Western Canal Water District has participated in the extensive discussions, which have led to the draft Sacramento Valley Settlement Agreement currently being considered by the SWRCB in Phase 8 of the Bay-Delta hearings. This Settlement Agreement forms a partnership among Sacramento Valley water rights holders, including Western Canal Water District, water users within the export areas, DWR, and the Bureau of Reclamation that has never been achieved to this magnitude in history. The Settlement Agreement recognizes the need to increase the overall water supplies available to all water users throughout the State and that a cooperative approach is the most effective means to meet this need. The Settlement Agreement and associated projects must be pursued in unison with CALFED goals, objectives, and program. The proposed project requested for funding under this grant application is a project that meets the common goals of the Settlement Agreement and CALFED.

Costs and Benefits

1. Budget Summary

a. Water Management Software, H2O Pro

Item	Amount	Qty	Total Cost	Local Share	CALFED Request
a. salaries and wages					
Oversight labor	$2000	2	$4000	$4000	0
b. fringe benefits (none-no indirect costs included with this component)					
c. supplies					
H2O ProSoftware	$10000	1	$10000	0	$10000
Hand held data recorders	$1800	6	$10800	0	$10800
Computer	$3000	1	$3000	0	$3000
Bar coded meter ID labels	$1	300	$300	0	$300
d. equipment (none)					
e. services or consultants					
User training	$2000	1	$2000	0	$2000
Annual software upgrades	$2000/yr	15 yrs	$19424*	0	$19424
f. travel (none)					
g. other direct costs (none)					
h. total estimated costs			**$49524**	**$4000**	**$45524**

* 6% discount rate over 15 year life

b. Water Meter Calibration Station

Item	Amount	Qty	Total Cost	Local Share	CALFED Request
a. salaries and wages					
Oversight labor	$3000	2	$6000	$6000	0
b. fringe benefits (none-no indirect costs included with this component)					
c. supplies					
Meter Calibration Station	$200000	1	$200000	0	$200000
d. equipment (none)					
e. services or consultants					
legal	$10000	1	$10000	$10000	0
f. travel (none)					
g. other direct costs					
engineering	$20000	1	$20000	0	$20000
h. total estimated costs			**$236000**	**$16000**	**$220000**

2. Oversight labor is for the project manager and staff to assist subcontractors and ensure smooth transition in all phases of the project. Supplies are the necessary items for implementation of the project in order to better analyze the success of the project. Legal costs include time spent developing contracts and agreements with subcontractors to the project. Engineering costs will cover design and feasibility of the meter calibration station. Software training and upgrades will allow District staff to properly use and maintain water management software program.

3. This project is expected increase water use efficiency by growers, reduce District staff time on water use analysis, and increase water measurement accuracy. Currently, these benefits cannot be quantified but are recognized by water managers from local, State and federal agencies as key components to overall water conservation principles. Improved water use efficiency can reduce costs to growers by decreasing on-farm deliveries. A reduction in on-farm deliveries will reduce diversions from the Feather River, partially addressing CALFED Quantifiable Objective #38. Increased water measurement accuracy is a direct benefit to the growers, District, and the State.

4. Assessment of Costs and Benefits

Item	Amount	Qty	Total Cost	Life (years)	Present Value	Beneficiary
Quantified Costs						
Oversight labor	$5000	2	$10000	N/a	$10000	N/a
H20 ProSoftware	$10000	1	$10000	15	$10000	N/a
Hand held data Recorders	$1800	6	$10800	15	$10800	N/a
Computer	$3000	1	$3000	15	$3000	N/a
Bar coded meter ID labels	$1	300	$300	15	$300	N/a
Meter Calibration Station	$200000	1	$200000	25	$200000	N/a
User training	$2000	1	$2000	15	$2000	N/a
Annual software upgrades	$2000/ year	1	$2000/ year	15	$19424	N/a
Engineering	$20000	1	$20000	25	$20000	N/a
Legal	$10000	1	$10000	25	$10000	N/a
Subtotal					$285524	
Quantifiable Benefits						
none	N/a	N/a	N/a	N/a	N/a	N/a
Non-Quantifiable Costs						
none	N/a	N/a	N/a	N/a	N/a	N/a
Non-Quantifiable Benefits						
Increase on-farm water use efficiency	N/a	N/a	N/a	N/a	N/a	Growers of WCWD
Flow for Quantifiable Objective #38	unknown	N/a	N/a	N/a	N/a	CALFED
Increase water use analysis efficiency	N/a	N/a	N/a	N/a	N/a	Growers of WCWD
Increase water measurement accuracy	N/a	N/a	N/a	N/a	N/a	Growers of WCWD & CALFED

Analysis Assumptions
6% discount rate
Present Value of costs and benefits are provided in year 2000 dollars